Stellenbosch UNIVERSITY IYUNIVESITHI UNIVERSITEIT

Econometrics 871
Course Outline 2023

Aims and objectives

Part 1 of the course prepares you for empirical economic research using time series data as well as serving as an introduction to theoretical econometric work. To that end, we will formally derive the building blocks of all basic time series models complemented with practical applications using standard statistical packages.

Part 2 of the course will introduce and discuss the applicability of a range of models that act as alternatives to conventional OLS regressions. Models will be introduced in the lectures and applied in the tutorials. We will focus on the identification assumptions behind of each model - when these assumptions are likely to hold and when they are unlikely to hold. This will students with the skills necessary to determine which of these models will be most appropriate for their own work.

Having completed this course successfully a student will

- understand the problems associated with empirical research and some of the leading formal paradigms developed to address those problems,
- have experience in how to select and apply the correct approach, and
- be able to understand and critique current empirical and theoretical research.

Lecturers: Gideon du Rand (convenor, gideondurand@sun.ac.za)
Part 1: Time Series Econometrics – Theory and Applications
Rm 503 C.G.W. Schumann Building
Tel: 021 808 2241

Cobus Burger (cobusburger@sun.ac.za)
Part 2: Cross Section Econometrics
Rm 608 C.G.W. Schumann Building

Textbooks

Part 1: Time Series Econometrics

The first part of the course will follow the prescribed text of the course closely.

Enders, Walter (2014) *Applied Econometric Time Series*, 4th Edition.
John Wiley and Sons, Hoboken.

A very complete reference text for students who wish to specialise in time series econometrics:

Hamilton, James D. (1992) *Time Series Analysis*. Princeton University Press

Additional readings may be assigned throughout the course.

Part 2: Cross Section Econometrics

Angrist, Joshua D. and Pischke, Jörn-Steffen. 2009. *Mostly Harmless Econometrics*. Princeton University Press: Oxford.

Lectures and Tutorials

Two sessions are scheduled per week: lectures on Tuesdays from 11:00 to 13:00 and tutorials Thursdays from 14:00 to 16:00. Practical illustrations of econometric techniques will be conducted using R, Matlab and/or Eviews for the time series part and Stata for the cross-section part. During some of the practical sessions, exercises for submission will be assigned as part of the assessment. Details will be provided in the first lecture.

Research Projects

Two larger research projects will be assigned during the course of the semester, one on Time Series Econometrics, one on Cross-Section Econometrics. All assignments must be completed to the satisfaction of the lecturer involved to pass the course. Details of these projects will be communicated by the lecturers.

Lecture topics in brief (provisional)

This lecture schedule is provisional on student progress and may be changed. All changes will be announced in advance.

Topic	Readings	Weeks
Part 1: Time Series Econometrics – Theory and Applications (du Rand)		
1. Difference Equations, Univariate Stationary Time Series Models	Enders, Chapters 1 and 2	2
2. Univariate Non-Stationary Time Series Models	Enders, Chapter 4	1
3. Multivariate Stationary Time Series Models	Enders, Chapter 5	1
4. Multivariate Stationary Time Series Models	Enders, Chapter 6	1
5. Non-linear models	Enders, Chapter 7	1
6. Model Selection and Forecasting (if time permits)	Hendry and Neilson, TBC	1
Part 2: Cross section Econometrics – (Burger)		
1. Discrete Choice Models		1
2. Survey Data Analysis		1
3. Static Panel Data Analysis		1
4. Introduction to Endogeneity		1
5. Programme Evaluation Techniques		2

Assessment

In order to pass the course a student must have:

- Submitted both research projects,
- A Test/Exam mark of at least 40% for *each* part of the course individually, and
- A Final Mark of at least 50%

Assessment	Date	Weight in Final Mark
Time Series (Mid-semester Test)	12 April 2023	25%
Time Series Research Project	28 April 2023	20%
Cross Section (Exam)	TBD	25%
Cross Section Research Project	19 June 2023	20%
Tutorials	Throughout course	10%

The following rules govern the assessments in this course:

- The mid-semester test covers Part 1 of the course.
    - It is **compulsory**. If the test is missed due to illness, a *valid*[1] medical certificate must be sent to the convenor within 48 hours of the assessment. Absence without a valid medical certificate implies an immediate incomplete for the course and it will have to be repeated (if the student qualifies – see master's handout).
    - Students who miss the test with valid medical excuse **or** obtain less than 40% in the time series test are *required* to rewrite on Part 1 during the exam period (on the *same* day as the exam on Part 2). Students who obtain a test mark between 40% and 49% may also take the exam on Part 1 as a supplementary opportunity.
        - If taken as a supplementary opportunity, the final mark for Part 1 is capped at 50%
    - The sick test opportunity for Part 1 is the **final** opportunity to pass part 1.
- If the exam mark on Part 2 is below 40%, the student fails the course.
- If the test (or sick test) mark on Part 1 **and** the exam mark on Part 2 is above 40% but the final course mark is below 50%, there will be a supplementary exam **only** on Part 2.
    - The student must achieve at least 40% in the supplementary exam and a final course mark of at least 50% to pass. This is the **final** opportunity to pass part 2 of the course.
    - The final course mark of students that write the supplementary exam on Part 2 is capped at 50%.
- If a student obtained at least 40% in the mid-semester test and misses the exam on Part 2 due to illness, the student must submit a valid (see footnote 1) medical certificate within 48 hours of the exam to Carina Smit (carina@sun.ac.za) and will then have access to the supplementary exam on part 2 as a sick exam without cap.
- Note: If a student submits a valid medical certificate for an assessment opportunity, **no** assessments on that day may be taken (or will be accepted).

[1] Medical certificates must meet specific the following requirements to be accepted, namely:
Name of the patient (student); Date and time of medical examination;
An indication that the certificate has been issued after a *personal observation* (this excludes telephonic consultation or communication) of the student by a suitably registered medical fractioned practitioner;
Confirmation that the student will not be able to or was not able to attend class or take the class test(s) or carry out the class work, due to illness; and any other information which, in the judgement of the practitioner would be required or relevant. Please refer to the University Calendar for further information.